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09/405,237	09/23/1999	JOHN K. RENWICK	IBN-0014	9267

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MOLINARI, MICHAEL J	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/405,237	Applicant(s) RENWICK ET AL.	
	Examiner Michael J Molinari	**Art Unit** 2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *2,7,18,19,21,24,29 and 30* is/are withdrawn from consideration.

5)☒ Claim(s) *12-15 and 26-28* is/are allowed.

6)☒ Claim(s) *1, 3-6, 8-10, 16-17, 20, 22-23, and 25* is/are rejected.

7)☒ Claim(s) *11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-6, 8, 10, 16-17, 20, 22-23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rekhter et al. ("Tag Switching Architecture") in view of Davie et al. ("Explicit Route Support in MPLS"), further in view of Semeria ("Multiprotocol Label Switching: Enhancing Routing in the New Public Network").

1. Referring to claim 1, Rekhter et al. disclose a method of forwarding data over a network from a source node to a destination node, comprising: providing a subnetwork (domain, see page 4, column 1, lines 30-31) within the network having a plurality of subnetwork nodes (switches, see page 2, column 1, lines 14-16) connected by a plurality of subnetwork links (see page 5, column 1, lines 22-24), the subnetwork nodes including an ingress node (see page 4, column 2, lines 13-16) and an egress node (see page 4, column 2, lines 16-21) coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths (routes, see page 2, column 2, lines 29-30) between the ingress node and the egress node; and associating each packet of data to be

transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node (see page 2, lines 13-32); wherein the subnetwork comprises a label-switched (label-swapping) network (see page 1, column 2, lines 19-22). Rekhter et al. disclose the use of explicit routes in MPLS but differ from claim 1 in that they do not teach the details of how explicit routes in MPLS work. However, the use of explicit routes in MPLS is well known in the art. For example, Davie et al. disclose forwarding a signal (RSVP path message, see page 3, lines 24-25) from the ingress node (first node, see page 3, lines 18-20) to the egress node (last node, see page 3, lines 18-20) along a route through a subset of subnetwork nodes (the subset of subnetwork nodes is made up of the nodes of the ER-LSP, see page 3, lines 32-36) between the ingress node and the egress node, said signal requesting a response from each node along the route (see page 3, lines 33-34); and receiving response signals from the nodes along the route (the response signals are contained within the RESV message, see page 3, lines 37-40 and page 4, lines 1-6), the response signals defining a path within the route between the ingress node and the egress node as being how explicit routing works in a tag switching (MPLS) network. One skilled in the art would have recognized the advantage of explicit routes as taught by Davie et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the implementation of explicit routes in MPLS as taught by Davie et al. into the MPLS method of Rekhter et al. to achieve the advantage of implementing explicit routes (which have the advantage of enabling ISPs to have greater control over QoS in their networks). Rekhter et al. in view of Davie et al. differ from claim 1 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node. However, this is also well known in the art. For example, Semeria teaches the

provision of multiple LSPs between each pair of edge LSRs (see page 16, lines 23-26), which has the advantage of providing better QoS in the network. One skilled in the art would have recognized the advantage of provisioning multiple LSPs between each pair of edge LSRs as taught by Semeria. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple LSPs between each pair of LSRs as taught by Semeria into the invention of Rekhter et al. in view of Davie et al. to achieve the advantage of providing better QoS in the network.

2. Referring to claim 3, Rekhter et al. disclose that the network comprises nodes (switches) which forward data using Internet protocol node addresses (see page 1, column 2, lines 4-9 and page 3, column 1, lines 8-12).

3. Referring to claim 4, Davie et al. disclose that each subnetwork node along the route allocates a plurality of labels for the plurality of paths along the route (see page 3, lines 39-40 and page 4, lines 1-2. Note that each path has its own label. Therefore, a plurality of paths inherently includes a plurality of labels).

4. Referring to claim 5, Rekhter et al. disclose a method of forwarding data over a network from a source node to a destination node, comprising: providing a subnetwork (domain, see page 4, column 1, lines 30-31) within the network having a plurality of subnetwork nodes (switches, see page 2, column 1, lines 14-16) connected by a plurality of subnetwork links (see page 5, column 1, lines 22-24), the subnetwork nodes including an ingress node (see page 4, column 2, lines 13-16) and an egress node (see page 4, column 2, lines 16-21) coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of

subnetwork links defining a plurality of subnetwork paths (routes, see page 2, column 2, lines 29-30) between the ingress node and the egress node; and associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node (see page 2, lines 13-32); wherein the subnetwork comprises a label-switched (label-swapping) network (see page 1, column 2, lines 19-22). Rekhter et al. disclose the use of explicit routes in MPLS but differ from claim 5 in that they do not teach the details of how explicit routes in MPLS work. However, the use of explicit routes in MPLS is well known in the art. . For example, Davie et al. disclose forwarding a signal (RSVP path message, see page 3, lines 24-25) from the ingress node (first node, see page 3, lines 18-20) to the egress node (last node, see page 3, lines 18-20) along a route through a subset of subnetwork nodes (the subset of subnetwork nodes is made up of the nodes of the ER-LSP, see page 3, lines 32-36) between the ingress node and the egress node, said signal requesting a response from each node along the route (see page 3, lines 33-34); and receiving response signals from the nodes along the route (the response signals are contained within the RESV message, see page 3, lines 37-40 and page 4, lines 1-6), the response signals defining a path within the route between the ingress node and the egress node as being how explicit routing works in a tag switching (MPLS) network. One skilled in the art would have recognized the advantage of explicit routes as taught by Davie et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the implementation of explicit routes in MPLS as taught by Davie et al. into the MPLS method of Rekhter et al. to achieve the advantage of implementing explicit routes (which have the advantage of enabling ISPs to have greater control over QoS in their networks). Rekhter et al. in view of Davie et al.

differ from claim 5 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node. However, this is also well known in the art. For example, Semeria teaches the provision of multiple LSPs between each pair of edge LSRs (see page 16, lines 23-26), which has the advantage of providing better QoS in the network. One skilled in the art would have recognized the advantage of provisioning multiple LSPs between each pair of edge LSRs as taught by Semeria. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple LSPs between each pair of LSRs as taught by Semeria into the invention of Rekhter et al. in view of Davie et al. to achieve the advantage of providing better QoS in the network. Rehkter et al. furthe differ from claim 5 in that they fail to disclose that the ingress node is coupled to a plurality of source nodes nad each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node. However, the examiner takes official notice that coupling an ingress node (or border node) to a plurality of source nodes is old and well known in the art. Davie et al. disclose that each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node (see page 2, lines 36-38 and page 3, lines 1-4).

5. Referring to claim 6, Rekhter et al. disclose a method of forwarding data over a network from a source node to a destination node, comprising: providing a subnetwork (domain, see page 4, column 1, lines 30-31) within the network having a plurality of subnetwork nodes (switches, see page 2, column 1, lines 14-16) connected by a plurality of subnetwork links (see page 5, column 1, lines 22-24), the subnetwork nodes including an ingress node (see page 4, column 2, lines 13-16) and an egress node (see page 4, column 2, lines 16-21) coupled to the source node

and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths (routes, see page 2, column 2, lines 29-30) between the ingress node and the egress node; and associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node (see page 2, lines 13-32); wherein the subnetwork comprises a label-switched (label-swapping) network (see page 1, column 2, lines 19-22). Rekhter et al. disclose the use of explicit routes in MPLS but differ from claim 6 in that they do not teach the details of how explicit routes in MPLS work. However, the use of explicit routes in MPLS is well known in the art. . For example, Davie et al. disclose forwarding a signal (RSVP path message, see page 3, lines 24-25) from the ingress node (first node, see page 3, lines 18-20) to the egress node (last node, see page 3, lines 18-20) along a route through a subset of subnetwork nodes (the subset of subnetwork nodes is made up of the nodes of the ER-LSP, see page 3, lines 32-36) between the ingress node and the egress node, said signal requesting a response from each node along the route (see page 3, lines 33-34); and receiving response signals from the nodes along the route (the response signals are contained within the RESV message, see page 3, lines 37-40 and page 4, lines 1-6), the response signals defining a path within the route between the ingress node and the egress node as being how explicit routing works in a tag switching (MPLS) network. One skilled in the art would have recognized the advantage of explicit routes as taught by Davie et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the implementation of explicit routes in MPLS as taught by Davie et al. into the MPLS method of Rekhter et al. to

achieve the advantage of implementing explicit routes (which have the advantage of enabling ISPs to have greater control over QoS in their networks). Rekhter et al. in view of Davie et al. differ from claim 6 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node. However, this is also well known in the art. For example, Semeria teaches the provision of multiple LSPs between each pair of edge LSRs (see page 16, lines 23-26), which has the advantage of providing better QoS in the network. One skilled in the art would have recognized the advantage of provisioning multiple LSPs between each pair of edge LSRs as taught by Semeria. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple LSPs between each pair of LSRs as taught by Semeria into the invention of Rekhter et al. in view of Davie et al. to achieve the advantage of providing better QoS in the network. Rekhter et al. further differ from claim 6 in that they fail to teach that the egress node is coupled to a plurality of destination nodes and each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node. However, the examiner takes official notice that coupling an egress node (or border node) to a plurality of destination nodes is old and well known in the art. Davie et al. disclose that each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node (see page 2, lines 36-38 and page 3, lines 1-4).

6. Referring to claim 8, Rekhter et al. disclose performing a logical operation on information carried in each packet of data (see page 2, column 1, lines 13-26).

7. Referring to claim 10, Semeria discloses that the logical operation is performed on an address field in the packet of data (see page 4, lines 21-26).

8. Referring to claim 16, Rekhter et al. disclose a method of forwarding data over a network from a source node to a destination node, comprising: providing a subnetwork (domain, see page 4, column 1, lines 30-31) within the network having a plurality of subnetwork nodes (switches, see page 2, column 1, lines 14-16) connected by a plurality of subnetwork links (see page 5, column 1, lines 22-24), the subnetwork nodes including an ingress node (see page 4, column 2, lines 13-16) and an egress node (see page 4, column 2, lines 16-21) coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths (routes, see page 2, column 2, lines 29-30) between the ingress node and the egress node; and associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node (see page 2, lines 13-32). Rekhter et al. disclose the use of explicit routes in MPLS but differ from claim 16 in that they do not teach the details of how explicit routes in MPLS work. However, the use of explicit routes in MPLS is well known in the art. . For example, Davie et al. disclose forwarding a signal (RSVP path message, see page 3, lines 24-25) from the ingress node (first node, see page 3, lines 18-20) to the egress node (last node, see page 3, lines 18-20) along a route through a subset of subnetwork nodes (the subset of subnetwork nodes is made up of the nodes of the ER-LSP, see page 3, lines 32-36) between the ingress node and the egress node, said signal requesting a response from each node along the route (see page 3, lines 33-34); and receiving response signals from the nodes along the route (the response signals are contained within the RESV message, see page 3, lines 37-40 and page 4, lines 1-6), the response signals defining a path within the route between the

ingress node and the egress node as being how explicit routing works in a tag switching (MPLS) network. One skilled in the art would have recognized the advantage of explicit routes as taught by Davie et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the implementation of explicit routes in MPLS as taught by Davie et al. into the MPLS method of Rekhter et al. to achieve the advantage of implementing explicit routes (which have the advantage of enabling ISPs to have greater control over QoS in their networks). Rekhter et al. in view of Davie et al. differ from claim 16 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node. However, this is also well known in the art. For example, Semeria teaches the provision of multiple LSPs between each pair of edge LSRs (see page 16, lines 23-26), which has the advantage of providing better QoS in the network. One skilled in the art would have recognized the advantage of provisioning multiple LSPs between each pair of edge LSRs as taught by Semeria. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple LSPs between each pair of LSRs as taught by Semeria into the invention of Rekhter et al. in view of Davie et al. to achieve the advantage of providing better QoS in the network. Rehkter et al. furthe differ from claim 16 in that they fail to disclose that the ingress node is coupled to a plurality of source nodes nad each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node. However, the examiner takes official notice that coupling an ingress node (or border node) to a plurality of source nodes is old and well known in the art. Davie et al. disclose that each source node coupled to the ingress node is associated with one of the plurality

of paths along the route between the ingress node and the egress node (see page 2, lines 36-38 and page 3, lines 1-4).

9. Referring to claim 17, Rekhter et al. disclose a method of forwarding data over a network from a source node to a destination node, comprising: providing a subnetwork (domain, see page 4, column 1, lines 30-31) within the network having a plurality of subnetwork nodes (switches, see page 2, column 1, lines 14-16) connected by a plurality of subnetwork links (see page 5, column 1, lines 22-24), the subnetwork nodes including an ingress node (see page 4, column 2, lines 13-16) and an egress node (see page 4, column 2, lines 16-21) coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths (routes, see page 2, column 2, lines 29-30) between the ingress node and the egress node; and associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node (see page 2, lines 13-32). Rekhter et al. disclose the use of explicit routes in MPLS but differ from claim 17 in that they do not teach the details of how explicit routes in MPLS work. However, the use of explicit routes in MPLS is well known in the art. . For example, Davie et al. disclose forwarding a signal (RSVP path message, see page 3, lines 24-25) from the ingress node (first node, see page 3, lines 18-20) to the egress node (last node, see page 3, lines 18-20) along a route through a subset of subnetwork nodes (the subset of subnetwork nodes is made up of the nodes of the ER-LSP, see page 3, lines 32-36) between the ingress node and the egress node, said signal requesting a response from each node along the route (see page 3, lines 33-34); and receiving response signals from the nodes

along the route (the response signals are contained within the RESV message, see page 3, lines 37-40 and page 4, lines 1-6), the response signals defining a path within the route between the ingress node and the egress node as being how explicit routing works in a tag switching (MPLS) network. One skilled in the art would have recognized the advantage of explicit routes as taught by Davie et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the implementation of explicit routes in MPLS as taught by Davie et al. into the MPLS method of Rekhter et al. to achieve the advantage of implementing explicit routes (which have the advantage of enabling ISPs to have greater control over QoS in their networks). Rekhter et al. in view of Davie et al. differ from claim 17 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node. However, this is also well known in the art. For example, Semeria teaches the provision of multiple LSPs between each pair of edge LSRs (see page 16, lines 23-26), which has the advantage of providing better QoS in the network. One skilled in the art would have recognized the advantage of provisioning multiple LSPs between each pair of edge LSRs as taught by Semeria. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple LSPs between each pair of LSRs as taught by Semeria into the invention of Rekhter et al. in view of Davie et al. to achieve the advantage of providing better QoS in the network. Rekhter et al. further differ from claim 17 in that they fail to teach that the egress node is coupled to a plurality of destination nodes and each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node. However, the examiner takes official notice that coupling an egress node (or border node) to a plurality of destination nodes is old and well known in the art.

Davie et al. disclose that each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node (see page 2, lines 36-38 and page 3, lines 1-4).

10. Referring to claim 20, Rekhter et al. disclose an apparatus for forwarding data over a network from a source node to a destination node, comprising: a subnetwork (domain, see page 4, column 1, lines 30-31) within the network having a plurality of subnetwork nodes (switches, see page 2, column 1, lines 14-16) connected by a plurality of subnetwork links (see page 5, column 1, lines 22-24), the subnetwork nodes including an ingress node (see page 4, column 2, lines 13-16) and an egress node (see page 4, column 2, lines 16-21) coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths (routes, see page 2, column 2, lines 29-30) between the ingress node and the egress node; and further characterized in that the subnetwork comprises a label-switched (label-swapping) network (see page 1, column 2, lines 19-22). Rekhter et al. disclose the use of explicit routes in MPLS but differ from claim 20 in that they do not teach the details of how explicit routes in MPLS work. However, the use of explicit routes in MPLS is well known in the art. For example, Davie et al. disclose a communication subsystem within the subnetwork for (i) forwarding a signal (RSVP path message, see page 3, lines 24-25) from the ingress node to the egress node along a route through a subset of subnetwork nodes (the subset of network nodes is made up of the nodes of the ER-LSP, see page 3, lines 32-36) between the ingress node (first node, see page 3, lines 18-20) and the egress node (last node, see page 3, lines 18-20), said signal requesting a response from each node along the

route (see page 3, lines 33-34), and (ii) forwarding response signals from the subnetwork nodes along the route (the response signals are contained within the RESV message, see page 3, lines 37-40 and page 4, lines 1-6), the response signals defining a path within the route between the ingress node and the egress node as being how explicit routing works in a tag switching (MPLS) network. One skilled in the art would have recognized the advantage of explicit routes as taught by Davie et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the implementation of explicit routes in MPLS as taught by Davie et al. into the MPLS method of Rekhter et al. to achieve the advantage of implementing explicit routes (which have the advantage of enabling ISPs to have greater control over QoS in their networks). Rekhter et al. in view of Davie et al. differ from claim 20 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node. However, this is also well known in the art. For example, Semeria teaches the provision of multiple LSPs between each pair of edge LSRs (see page 16, lines 23-26), which has the advantage of providing better QoS in the network. One skilled in the art would have recognized the advantage of provisioning multiple LSPs between each pair of edge LSRs as taught by Semeria. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple LSPs between each pair of LSRs as taught by Semeria into the invention of Rekhter et al. in view of Davie et al. to achieve the advantage of providing better QoS in the network. Rehkter et al. furthe differ from claim 20 in that they fail to disclose that the ingress node is coupled to a plurality of source nodes nad each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node. However, the examiner takes official notice that coupling an ingress

node (or border node) to a plurality of source nodes is old and well known in the art. Davie et al. disclose that each source node coupled to the ingress node is associated with one of the plurality of paths along the route between the ingress node and the egress node (see page 2, lines 36-38 and page 3, lines 1-4).

11. Referring to claim 22, Rekhter et al. disclose that the network comprises nodes (switches) which forward data using Internet protocol node addresses (see page 1, column 2, lines 4-9 and page 3, column 1, lines 8-12).

12. Referring to claim 23, Davie et al. disclose that each subnetwork node along the route allocates a plurality of labels for the plurality of paths along the route (see page 3, lines 39-40 and page 4, lines 1-2. Note that each path has its own label. Therefore, a plurality of paths inherently includes a plurality of labels).

13. Referring to claim 25, Rekhter et al. disclose an apparatus for forwarding data over a network from a source node to a destination node, comprising: providing a subnetwork (domain, see page 4, column 1, lines 30-31) within the network having a plurality of subnetwork nodes (switches, see page 2, column 1, lines 14-16) connected by a plurality of subnetwork links (see page 5, column 1, lines 22-24), the subnetwork nodes including an ingress node (see page 4, column 2, lines 13-16) and an egress node (see page 4, column 2, lines 16-21) coupled to the source node and the destination node, respectively, at least one pair of subnetwork nodes being connected by a plurality of subnetwork links, the plurality of subnetwork nodes and the plurality of subnetwork links defining a plurality of subnetwork paths (routes, see page 2, column 2, lines 29-30) between the ingress node and the egress node; and associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality

of paths between the ingress node and the egress node (see page 2, lines 13-32). Rekhter et al. disclose the use of explicit routes in MPLS but differ from claim 25 in that they do not teach the details of how explicit routes in MPLS work. However, the use of explicit routes in MPLS is well known in the art. For example, Davie et al. disclose forwarding a signal (RSVP path message, see page 3, lines 24-25) from the ingress node (first node, see page 3, lines 18-20) to the egress node (last node, see page 3, lines 18-20) along a route through a subset of subnetwork nodes (the subset of subnetwork nodes is made up of the nodes of the ER-LSP, see page 3, lines 32-36) between the ingress node and the egress node, said signal requesting a response from each node along the route (see page 3, lines 33-34); and receiving response signals from the nodes along the route (the response signals are contained within the RESV message, see page 3, lines 37-40 and page 4, lines 1-6), the response signals defining a path within the route between the ingress node and the egress node as being how explicit routing works in a tag switching (MPLS) network. One skilled in the art would have recognized the advantage of explicit routes as taught by Davie et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the implementation of explicit routes in MPLS as taught by Davie et al. into the MPLS method of Rekhter et al. to achieve the advantage of implementing explicit routes (which have the advantage of enabling ISPs to have greater control over QoS in their networks). Rekhter et al. in view of Davie et al. differ from claim 25 in that they fail to disclose the creation of multiple paths between the ingress node and the egress node. However, this is also well known in the art. For example, Semeria teaches the provision of multiple LSPs between each pair of edge LSRs (see page 16, lines 23-26), which has the advantage of providing better QoS in the network. One skilled in the art would have recognized the advantage of

provisioning multiple LSPs between each pair of edge LSRs as taught by Semeria. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of multiple LSPs between each pair of LSRs as taught by Semeria into the invention of Rekhter et al. in view of Davie et al. to achieve the advantage of providing better QoS in the network. Rekhter et al. further differ from claim 25 in that they fail to teach that the egress node is coupled to a plurality of destination nodes and each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node. However, the examiner takes official notice that coupling an egress node (or border node) to a plurality of destination nodes is old and well known in the art. Davie et al. disclose that each destination node coupled to the egress node is associated with one of the plurality of paths along the route between the ingress node and the egress node (see page 2, lines 36-38 and page 3, lines 1-4).

14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rekhter et al. ("Tag Switching Architecture") in view of Davie et al. ("Explicit Route Support in MPLS"), further in view of Semeria ("Multiprotocol Label Switching: Enhancing Routing in the New Public Network") as applied to claim 8 above, and further in view of Woodcock et al. ("Microsoft Press Computer Dictionary").

15. Referring to claim 9, Rekhter et al. disclose the method of claim 8 above, but fail to disclose that the logical operation comprises a hash function. However, the use of hash functions in accessing tables of data (such as routing tables) is well known in the art. For example, Woodcock et al. teach the use of hashing to find an element in a list, which has the advantage of being highly efficient. One skilled in the art would have recognized the advantage of hashing as

taught by Woodcock et al. Therefore, it would have been obvious to a person with ordinary skill in the art at the time of the invention to incorporate the use of hashing as taught by Woodcock et al. into the invention of Rekhter et al. in view of Davie et al., further in view of Semeria to achieve the advantage of making the TIB table lookups highly efficient.

Allowable Subject Matter

1. Claims 12-15 and 26-28 are allowed.

2. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

2. Applicant's arguments filed 7 February 2003 have been fully considered but they are not persuasive.

3. Referring to Applicant's arguments pertaining to claim 7 (now part of claim 1), the Examiner does not find the arguments to be persuasive. Applicant has argued that Rekhter does not teach associating each packet of data to be transferred from a particular source node to a particular destination node with one of the plurality of paths between the ingress node and the egress node. Rekhter does teach this as shown on page 2, column 1, lines 13-32. Rekhter teaches that each packet receives a tag, which identifies that the packet as belonging to a certain flow. Rekhter further describes destination-based routing in the Destination-based Routing section on page 3, and further explains that routes are bound to specific tags on page 3, column 2, lines 31-37.

4. Referring to claims 5, 6, 20 (which now includes the limitations of canceled claims 21 and 24), and 25, Applicant has argued that Davie et al. fail to teach that source nodes and destination nodes are associated with one of a plurality of paths. The Examiner respectfully disagrees. Davie et al. clearly state that the RESV message that is sent from the receiver to the sender contains a label that the sender can use to send data to the receiver. This label is what associates the sender and receiver to the specific path chosen since label switching means that a packet with a certain label takes a certain, predetermined, path through the network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Molinari whose telephone number is (703) 305-5742. The examiner can normally be reached on Monday-Friday 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703) 308-6602. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9315 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

mjm

Michael Joseph Molinari
March 26, 2003

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